

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A computer-implemented method for comparing an unknown string to a predefined string, the method comprising:

storing, on a network device, a database containing a plurality of predefined strings in ASCII binary representation, wherein the predefined strings stored within the database represent known headers for a network communication protocol;

receiving, with the network device, a network message having characters in ASCII binary representation, wherein a case of the characters of the received network message is unknown by the network device;

in response to receiving the network message, selecting one of the plurality of predefined strings stored within the database of the network device;

identifying a portion of the network message as an unknown string for comparison with the selected predefined string, wherein the unknown string and the selected predefined string have an equal number of characters;

dividing the unknown string and the selected predefined string into segments, wherein the segments of the unknown string and the segments of the selected predefined string have an equal number of the characters;

performing a bitwise exclusive OR operation between ~~[[an]]~~ the ASCII binary representation of each of the segments of at least a segment of the unknown string and ~~[[an]]~~ the ASCII binary representation of each of the segments at least a segment of the selected predefined string;

performing a bitwise operation between a predefined flag and each ~~[[a]]~~ result of the exclusive OR operations, wherein the predefined flag has an equal number of characters as the result of the exclusive OR operation;

comparing the predefined flag and each ~~[[a]]~~ result of the bitwise operations to produce an indication for a case-insensitive string match, wherein the indication for the case-insensitive

string match indicates whether all the characters of the segments of the unknown string within the network message match all the corresponding characters of the segments of the selected predefined string so as to match one of the known headers of the network communication protocol;

processing the network message based on the indication of the case-insensitive string match; and

outputting a response from the network device based on the processed network message.

Claim 2 (Original): The method of claim 1, further comprising identifying a segment of the selected predefined string and identifying a segment of the unknown string for comparison with the identified segment of the selected predefined string.

Claim 3 (Original): The method of claim 2, wherein the segment of the selected predefined string and the segment of the unknown string contain a same number of characters.

Claim 4 (Original): The method of claim 2, further including left-shifting the binary representation of the segments if the segments contain less than four characters.

Claim 5 (Original): The method of claim 2, wherein identifying a case-insensitive string match includes identifying a case-insensitive segment match based on the exclusive OR operation.

Claim 6 (Cancelled).

Claim 7 (Original): The method of claim 1, wherein the predefined flag is 0x20202020.

Claim 8 (Original): The method of claim 2, further comprising identifying a subsequent segment of the selected predefined string and a subsequent segment of the unknown string for comparison.

Claim 9-10 (Cancelled).

Claim 11 (Original): The method of claim 1, wherein the predefined flag is zero.

Claim 12 (Original): The method of claim 1, wherein the predefined flag is 0x20.

Claim 13 (Original): The method of claim 1, wherein the predefined flag is 0x20202020.

Claim 14 (Original): The method of claim 1, wherein the segment of the unknown string and the segment of the selected predefined string each include one character.

Claim 15 (Original): The method of claim 1, wherein the segment of the unknown string and the segment of the selected predefined string each include four characters.

Claim 16 (Original): The method of claim 1, wherein the unknown string includes an HTTP header field.

Claim 17 (Original): The method of claim 1, wherein the selected predefined string is from a table of predetermined HTTP header fields.

Claim 18 (Original): The method of claim 1, wherein identifying a case-insensitive match further includes performing another bitwise operation.

Claim 19 (Original): The method of claim 1, further comprising identifying the length of the strings.

Claim 20 (Original): The method of claim 19, wherein the length of each of the strings are equal.

Claim 21 (Original): The method of claim 1, wherein the computer-implemented method is used over a WAN.

Claim 22 (Original): The method of claim 1, further comprising determining if characters of the strings are within a predefined ASCII range.

Claim 23 (Original): The method of claim 22, wherein characters not within the predefined ASCII range caused the method to yield a negative string match.

Claim 24 (Currently Amended): A method of case-insensitive string matching for use in a computer network, the method comprising:

storing, on a network device, a plurality of predefined strings in ASCII binary representation, wherein the predefined strings represent known headers for a network communication protocol;

receiving, with the network device, a network message in ASCII binary representation;
selecting one of the plurality of predefined strings stored within the network device;
identifying a portion of the network message as an unknown string for comparison with the selected predefined string, wherein the portion of the network message and the selected predefined string have an equal number of characters;

performing at least one bitwise exclusive OR operation between all of the characters of the selected predefined string and the corresponding characters of the unknown string,

performing a bitwise OR operation between a result of the bitwise exclusive OR operation and a predetermined flag; and

comparing the predetermined flag and a result of the bitwise OR operation to produce a single bit output that indicates whether a case-insensitive match exists between the selected predefined string and the unknown string;

processing the network message based on the indication of the case-insensitive match;
and

outputting a response from the network device.

Claim 25 (Currently Amended): A computer networking device for improving data transfer via a computer network, the device comprising a processor configured to compare a client HTTP header with a known HTTP header by:

storing, on the networking device, a database containing a plurality of known HTTP headers in ASCII binary representation;

receiving, with the networking device, a client HTTP header in ASCII binary representation;

in response to receiving the client HTTP header, selecting one of the known HTTP headers stored within the database of the network device, wherein the known HTTP header selected from the and the client HTTP header have an equal number of binary ASCII characters;

performing a bitwise exclusive OR operation on all of the binary ASCII characters representations of the client HTTP header and the binary ASCII characters of the known HTTP header selected from the database,

performing a bitwise OR operation between a result of the exclusive OR operation and a predetermined flag;

comparing the predetermined flag and a result of the bitwise OR operation to produce an indication for a case-insensitive string match between the client HTTP header and the selected known HTTP header;

processing the network message based on the indication of the case-insensitive match;
and

outputting a response from the network device based on the processed network message.

Claim 26 (Currently Amended): An article of manufacture comprising a non-transitory storage medium having a plurality of machine-readable instructions, wherein when the instructions are executed by a computing system, the instructions providing for:

storing, on a network device, a database containing a plurality of predefined strings in ASCII binary representation, wherein the predefined strings stored within the database represent known headers for a network communication protocol;

receiving, with the network device, a network message in ASCII binary representation;
in response to receiving the network message, selecting one of the plurality of predefined strings stored within the database of the network device;

identifying a portion of the network message as an unknown string for comparison with the selected predefined string;

dividing the unknown string and the selected predefined string into corresponding segments, wherein the segments of the unknown string and the segments of the selected predefined string have an equal number of the characters;

for each of the segments of the unknown string, performing a bitwise exclusive OR operation between [[an]] the ASCII binary representation of ~~the at least a~~ segment of the unknown string and [[an]] the ASCII binary representation of a corresponding ~~at least a~~ segment of the selected predefined string, wherein the segment of the unknown string and the segment of the selected predefined string have an equal number of characters;

for each of the exclusive OR operations, performing a bitwise operation between a predefined flag and a result of the exclusive OR operation;

for each of the bitwise operations, comparing the predefined flag and a result of the bitwise OR operation to produce an indication for a case-insensitive string match between the predefined string and the unknown string, wherein the indication for the case-insensitive match indicates whether all characters of the unknown string within the network message match all corresponding characters of the identified predefined string so as to match one of the known headers of the network communication protocol;

processing the network message based on the indication of the case-insensitive match;
and

outputting a response from the network device based on the processed network message.